AFFORDABLE HOUSING

"AFFORDABLE HOUSING"

Design and Market Analysis of Affordable Housing Types in Ontario

Prepared For

Housing Supply Policy Branch

Ministry of Housing

By

Fliess Gates McGowan Easton Architects

and

Clayton Research Associates

June, 1989

TABLE OF CONTENTS

	Page
INTRODUCTION	1
FINDINGS	1
APPROACH	1
BRAMPTON	3
Financial Analysis	4
Market Analysis	4
OAKVILLE	6
Financial Analysis	7
Market Analysis	8
LONDON	9
Financial Analysis	9
Market Analysis	10
CONCLUSION	11

LIST OF ILLUSTRATIONS

INTRODUCTION

The Ontario Ministry of Housing commissioned the firms of Fliess Gates McGowan Easton Architects and Clayton Research Associates to undertake a study regarding the feasibility of producing new housing under the affordability guidelines outlined in the Province's Draft Housing Policy Statement.

Specifically, the purpose of the study is:

- To examine the question of whether "market" housing can be provided for households of moderate income as defined by the Province's Housing Policy Statement; and
- To indicate the type of housing units and urban development standards required to implement the policy.

The main focus of the study is on ownership housing although the provision of rental housing alternatives is considered as well.

FINDINGS

An analysis of the ownership housing markets in three case study areas, Brampton, Oakville and London, indicates that the affordability problem is much greater in Brampton and Oakville than in London. New housing in London, even single-detached housing, is currently being built and sold at market prices below the Province's affordable guideline price.

In Brampton and Oakville, on the other hand, the market value of almost all new housing is higher than the Province's guideline price. While some dwelling types, for example, small lot semi-detached houses and back-to-back townhouses, could be built at or near the guideline price, the real market value of such units would be considerably higher. Other units, such as low-rise and mid-rise apartments, could be built and sold at market prices at or below the guideline price.

APPROACH

The analysis was undertaken for new housing in three centres: Brampton, Oakville and London. Brampton and Oakville were chosen as being representative of housing markets which are under considerable pressure with high and, until recently, rising prices while London was chosen to be representative of a more "normal" housing market. The maximum price for a new dwelling considered to be affordable for the 60th percentile of households as calculated by the Province is $148,500 in Brampton and Oakville and $121,500 in London.

A variety of three or four dwelling types were selected for analysis in each centre. The selection of dwelling types was intended to provide a flavour of the costs and prices of several different dwelling types without undertaking an exhaustive analysis of all of the possible varieties of housing in each centre.

The types of dwellings selected are mainly family-type accommodation since families comprise the majority (about 60 percent) of current renters likely to consider purchasing a home of their own in the three centres. Also, if it can be shown that family accommodation can be provided at the Province's guideline prices then it should follow that housing suitable for single people (i.e., one bedroom or bachelor units) will also be able to be provided at or below the guideline prices.

The dwelling types selected for analysis here include:

- Mid-rise two bedroom apartments - Oakville;
- Low-rise two bedroom apartments - Brampton;
- Street and condominium townhouses - street townhouses in Brampton and London and a back-to-back condominium townhouse in Oakville;
- Semi-detached houses - Brampton and London; and
- A one bedroom bonus unit constructed above a garage in a single-detached house and intended for the rental market - this was examined in all three centres.

Illustrations of each of these dwelling types are provided at the back of this report.

Higher density dwellings, i.e., apartment units, were examined for Brampton and Oakville only since it was apparent that the market prices for lower density forms of housing met or were lower than the Province's guideline price in London. In order not to concentrate the analysis for Brampton and Oakville on apartments, only one type of apartment was selected for analysis in each of these centres.

Another consideration in selecting lower density housing types was that developers contacted in the course of the study were generally not enthusiastic about building high-rise apartments as affordable housing for families. In part, this appears due to a desire to retain apartment land for higher priced condominiums, however, it is also due to past bad experience with "affordable" condominiums targeted at families on the margin of affordability - for example, apartments built under the federal Assisted Home Ownership Program.

For each type of dwelling examined in each centre, both a financial and a market analysis were conducted:

- The financial analysis consisted of the estimation of land, construction and overhead costs, plus a "reasonable" builder's profit that would normally be expected for each housing type in each market.

- The market analysis consisted of the estimation of the selling prices and, in the case of the converted unit, the rent which each dwelling type could command on the market.

These analyses were based on information provided by builders, developers and analysts knowledgeable about costs and prices in each of the three centres. In Brampton and Oakville, reliable cost and price information was difficult to obtain since little comparable housing is currently being built. Therefore, the estimates presented in the financial and market analyses, particularly for Brampton and Oakville, involve a considerable amount of judgement on the part of the consultants.

BRAMPTON

In Brampton, four potential affordable dwelling types were examined:

- Small lot semi-detached house - a variety of types and sizes were examined but the configuration with the greatest potential to meet the guideline price was a 972 square foot two bedroom unit with driveway parking (see Figures 2 to 4 and 18). To reduce the cost, the unit is placed on a 30 x 70 foot lot with reduced road widths and setbacks rather than on a more conventional lot with a 110 foot depth.

- Townhouse - a three bedroom, 1,275 square foot street townhouse with a garage but no basement on a 20 foot lot (see Figures 6, 7 and 18).

- Walk-up apartment - two bedroom units at a maximum of 960 square feet gross floor area per unit (about 800 square feet of living space), with a combination of surface and underground parking (see Figures 10 to 12 and 19).

- One bedroom bonus unit over garage - this design consists of a standard single-detached house with a self-contained unit built above the garage. The house in itself may not be an affordable solution for ownership housing but the potential for a self-contained unit within it can be considered part of the affordable solution for the rental market (see Figures 15 and 16).

With the exception of the one bedroom bonus unit in the single-detached house, all of the dwelling types are considered

to be suitable for families. This was an important consideration in this assignment since almost 60 percent of potential first-time buyers in the Toronto CMA are families. For the purposes of this analysis, potential buyers are assumed to be all renters below the age of 55 years.

Financial Analysis

The financial analysis indicates that the cost of producing these dwellings varies from only $20,000 for the construction cost of the bonus unit in the house (land is considered free) to just under $128,000 for the two bedroom walk-up apartment to over $165,000 for the three bedroom street townhouse.

FINANCIAL ANALYSIS FOR AFFORDABLE HOUSING TYPES, BRAMPTON

Costs ($)	Small Lot Semi-Detached Two Bedroom	Street Townhouse Three Bedroom	Walk-Up Apartment Two Bedroom	Bonus Unit Above Garage One Bedroom
Land	62,270	64,000	35,000	
Constr.	58,320	70,125	67,200	20,000
Overhead	15,074	16,765	12,775	
Profit	15,074	16,765	12,775	
Total	150,738	167,655	127,750	20,000
Assumptions				
Land	$62,270 per unit including levy*	20 ft. lot $3,200/ff including levy	$35,000 per unit including levy	
Constr.	$60/sf 972 sf	$55/sf 1,275 sf	$70/sf 960 sf gfa	$40/sf 500 sf

Overhead and profits were each calculated as 10 percent of sales price.

* Based on a 30 x 70 foot lot and reduced road width; this is estimated to produce roughly a 10 percent land cost saving over a conventional 30 x 110 foot lot.

Source: Clayton Research Associates and Fliess Gates McGowan Easton Architects.

The dwellings with the most potential to meet the Province's guideline affordable price are the walk-up apartment and the two bedroom semi-detached house. Clearly the large size of the three bedroom townhouse pushes the costs beyond the range of the $148,500 guideline price.

The bonus one bedroom apartment also appears likely to fit the affordability guideline definition since the monthly mortgage payment necessary to carry the additional construction cost would be less than $225. Even allowing for taxes, maintenance and insurance, it is clear that the break-even rent would be well below half the Province's guideline affordable rent of $1,320.

Market Analysis

In general, it seems likely that the current market prices of the dwellings would be considerably higher than the financial analysis indicated. This is due to the very strong demand for lower-priced dwellings in the Toronto area and the general lack of supply of such dwellings in either the new or the resale market.

A review of the recent selling prices of new townhouses and high-rise condominium apartments in Brampton (at the time of the analysis, there were no new walk-up apartments or semi-detached houses for sale) confirms this conclusion. The minimum price for a new townhouse in Brampton is

approximately $180,000 while the lowest price for new condominium high-rise apartments is just above the affordability guideline at $151,000. In general, the prices of both freehold townhouses and condominium apartments in Brampton are above the affordable guideline price for the Toronto CMA of $148,500.

NEW HOUSING CURRENTLY BEING MARKETED IN BRAMPTON, MARCH, 1989

	Size (sf)	Price Range	Number of Bedrooms
Townhouse	860-1,570	$199,900-$209,900	2-3
	1,189-1,624	$179,900-$192,490	3
	1,264-1,711	$189,900-$207,900	3
	1,370-1,820	$204,990-$222,900	3
Condominium Apartment	909-1,033	$151,000-$190,000	1-2
	936-1,147	$167,400-$210,000	1-2
	1,055-1,325	$193,000-$240,000	1-2

Source: Clayton Research Associates based on data from Trillion Management Corporation and surveys of projects.

In the resale market, the average prices for all unit types are above the affordable guideline price. Resale semi-detached dwellings average over $195,000 while freehold townhouses average almost $175,000. Apartment condominiums, at just over $151,000, are closest to the guideline price.

AVERAGE MLS HOUSE PRICES BRAMPTON, 1989*

	Average Price
Single-Detached	$239,770
Link Houses	$205,931
Semi-Detached	$196,363
Townhouse	$174,642
Condominium	
Townhouse	$159,606
Apartment	$151,435

* Average for first four months of 1989.

Source: Toronto Real Estate Board.

Many of these dwellings are relatively modest in size and amenities since a large proportion would have been built under the Assisted Home Ownership Program and other programs targeted at first-time homebuyers in the 1970s. Even the zero lot line townhouses and single-detached dwellings built as "affordable" housing during the 1970s in Brampton are currently selling in the $155,000-$160,000 range - above the Province's guideline price.

The difficulty of building new housing in Brampton below the Province's guideline prices is further demonstrated by an examination of the maximum unit prices (MUPs) for non-profit housing in the City. MUPs range from a low of $134,000-$147,000 for two and three bedroom units in walk-up apartments to $161,000-$170,000 for townhouses.

It seems clear that the market prices of the dwelling types under consideration here will, in some cases, be significantly higher in Brampton than the financial analysis indicates. Estimation of the actual market price is complicated by the fact that there is little new product on the market at the present time which can provide an indication of the likely market prices of these dwellings. Also, the market price will depend partly on the numbers of dwellings to be brought to the market - the more units there are for sale, the lower the likely market price.

For the three dwelling types under consideration in this analysis, it appears that the broad market prices would be as follows:

- Small lot semi-detached houses (972 square feet):
  - $165,000-$175,000

- Townhouses (1,275 square feet):
  - $185,000-$195,000

- Walk-up apartments (800 square feet net):
  - $145,000-$155,000

These estimated market prices all assume that there would be sufficient numbers of units brought to the market to assure a reasonably competitive situation. If very few units are built, the market prices would probably be higher.

The apartment in the converted house would likely have a market rent significantly lower than the affordable guideline rent for Brampton ($1,320); it is estimated that market rents for such units would be roughly $550-$600 per month.

However, the majority of buyers of new houses would probably not consider this option as a market rental proposition. Considering the price of new single-detached houses in Brampton, most buyers of houses with a bonus unit would likely be move-up buyers and would not generally need to rely on the rental income from the bonus unit to make the house affordable to them. It seems more likely that such an apartment would be used for special circumstances such as housing an elderly parent, grown-up children or a nanny. While this would mean that the unit would, in many cases, not be available for the general renting public, it would still contribute to rental housing supply in the sense that provision of the unit for such occupants would, in many cases, reduce the demand for conventional rental housing.

OAKVILLE

Three potential affordable dwelling types were examined in Oakville:

- Back-to-back townhouse units - two bedroom, 890 square foot townhouse units arranged in a quattroplex manner with common side and rear walls. The units would be condominium tenure but land would be the only common element. Parking is provided on-site (see Figures 8 and 9).

- Mid-rise apartments - two bedroom units at a maximum of 970 square feet gross floor area per unit (780 square feet of living space) with a combination of surface and underground parking but minimal common-use amenities for occupants (see Figures 13 and 14).

- One bedroom bonus unit over garage - the same design as was used in the Brampton analysis (see Figures 15 and 16).

The back-to-back townhouses and, to a lesser extent, the apartment units are considered to be suitable for families which represent about 60 percent of potential first-time buyers in the Toronto CMA. The apartment units are less family oriented since the plans and costs envisage minimal allowance for common-use amenities and play areas; these could be added but would lead to higher per unit costs. The bonus unit would be more suitable for childless couples or single people.

FINANCIAL ANALYSIS FOR AFFORDABLE HOUSING TYPES, OAKVILLE

Costs ($)	Back-to-Back Townhouse Two Bedroom	Mid-Rise Apartment Two Bedroom	Bonus Unit Above Garage One Bedroom
Land	55,000	35,000	
Constr.	53,400	72,750	20,000
Overhead	13,550	13,469	
Profit	13,550	13,469	
Total	135,500	134,688	20,000
Assumptions			
Land	$55,000 per unit including levy	$35,000 per unit including levy	
Constr.	$60/sf 890 sf	$75/sf 970 sf gfa	$40/sf 500 sf

Overhead and profits were each calculated as 10 percent of sales price.

Source: Clayton Research Associates and Fliess Gates McGowan Easton Architects.

Financial Analysis

Estimates of the land costs for both the back-to-back townhouse and the apartment in Oakville were complicated by the fact that little land is available for such housing in the City. The estimates presented below are based partly on costs in Mississauga and Burlington with adjustments for the differences in location.

Production costs for these dwellings range from $20,000 for the bonus unit to about $135,000 for both the townhouse unit and the mid-rise apartment - all of which are below the $148,500 guideline price level affordable to households at the 60th income percentile. Therefore, both these units have potential for providing affordable housing to these households.

High-rise apartments are not examined in detail in this analysis. However, it would be relatively simple to add several stories to the mid-rise apartment structure which could result in significant cost savings - particularly if the total cost of the land remained the same (i.e., the per unit land cost would decline). For apartments above 20 stories, per unit construction costs decline to roughly $70 per square foot so construction cost savings would be achieved as well as land cost savings.

The bonus one bedroom apartment unit would provide affordable rental housing in Oakville since, as estimated in the Brampton case, the monthly mortgage and operating costs would be much less than the $1,320 affordable guideline rent.

Market Analysis

As for the Brampton dwellings, current market prices for the back-to-back townhouse and the mid-rise apartment for Oakville would be expected to be higher than the production costs indicate. However, there is little currently on the market on which to base estimates of market prices for the modest units proposed here. Units presently on the market are generally much larger and have more extensive amenities.

NEW HOUSING CURRENTLY BEING MARKETED IN OAKVILLE, MAY, 1989

	Size (sf)	Price Range	Number of Bedrooms
Townhouse	1,650	$210,990-$217,990	3
	1,290-2,100	$219,990-$255,990	3
	1,876-1,962	$246,900-$265,900	2-3
Condominium Townhouse	1,423-2,134	$199,000-$263,000	3
Apartment	1,321-1,449	$199,900-$232,900	2
	1,260-1,538	$199,900-$359,900	1-2

Source: Clayton Research Associates based on data from Trillion Management Corporation and surveys of projects.

The prices of new condominium townhouses in Oakville currently start at just under $200,000; street townhouses start at well over $200,000. These units, however, are generally much larger than the townhouse units considered in this analysis (i.e., 1,290+ square feet vs 890 square feet) and have luxury features and finishes that would not be included in the affordable back-to-back townhouse model.

New high-rise apartment condominiums currently being marketed in Oakville also have a $200,000 starting price. As with townhouses, these units are much larger and generally more luxurious than the 780 square foot mid-rise unit proposed in the financial analysis and are located in prime locations in the City.

Resale condominium and freehold townhouse prices are lower than prices for new units but still generally exceed the Province's guideline price level of $148,500.

AVERAGE MLS HOUSE PRICES OAKVILLE, 1989*

	Average Price
Single-Detached	$337,180
Link Houses	$199,900
Semi-Detached	$189,900**
Townhouse	$186,633**
Condominium	
Townhouse	$161,238
Apartment	$132,000**

* Average for first four months of 1989.
** Based on three or fewer sales.

Source: Toronto Real Estate Board.

In Oakville, as was the case in Brampton, the estimation of actual market prices was complicated by the fact that there is currently little, if any, new housing on the market that is comparable in size and character to the housing types suggested in the analysis as being affordable.

Based on selling prices for new and resale projects in Oakville as well as Mississauga, Burlington and Brampton and accounting for the upmarket nature of most new projects, our best estimates of the actual market value of the affordable housing types are as follows:

- Back-to-back townhouse (890 square feet):
  - $150,000 - $160,000

- Mid-rise apartment (780 square feet net):
  - $135,000 - $145,000

As noted in the Brampton analysis, these estimates assume that sufficient numbers of units are brought to the market to ensure a competitive situation.

Thus, the mid-rise apartment could likely be marketed at prices below the Province's affordable guideline price of $148,500 per unit, while the back-to-back townhouse would likely have a market price somewhat above the guideline price. In the case of the mid-rise apartment, it would appear there could also be room to add some common-use amenities which could make the units more suitable for families without leading to cost and price increases that would exceed $148,500.

The market rent for the one bedroom bonus unit would be in the range of $550-$600 per month, much less than the Province's $1,320 affordable rent level. As discussed in the Brampton analysis, this rental unit would most likely be used for housing relatives or employees, but in doing so would still have a positive effect on rental market conditions.

LONDON

In London, most housing types can be provided by the market at or below the affordable level under current cost assumptions. The three housing types selected for analysis in London were:

- Semi-detached houses - the same dwelling as was used in the Brampton analysis but on a standard 30 x 110 foot lot (see Figures 2, 4 and 17).

- Street townhouses - the same townhouse as was used in the Brampton analysis (see Figures 6, 7 and 17).

- One bedroom bonus unit over garage - this also is the same as was used in the Brampton and Oakville analyses (see Figures 15 and 16).

Financial Analysis

According to the financial analysis, the costs (plus "reasonable" profit) for the semi-detached houses and street townhouses would both fall below the guideline affordable price level for ownership housing in London ($121,500). A preliminary analysis of a larger three bedroom, 1,209 square foot semi-detached house (see Figure 5) indicates that it also can be

built at a cost similar to or below the guideline price. The rent for the bonus unit would, as with Brampton and Oakville, be well below the maximum affordable rent ($1,080) based on the carrying costs of the unit alone.

FINANCIAL ANALYSIS FOR AFFORDABLE HOUSING TYPES, LONDON

Costs ($)	Semi-Detached Two Bedroom	Street Townhouse Three Bedroom	Bonus Unit Above Garage One Bedroom
Land	30,910	21,010	
Constr.	53,460	70,125	20,000
Overhead	10,546	11,392	
Profit	10,546	11,392	
Total	105,462	113,919	20,000
Assumptions			
Land	30 ft. lot @ $950/ff + lot levy	20 ft. lot @ $950/ff + lot levy	
Constr.	$55/sf 972 sf	$55/sf, 1,275 sf	$40/sf, 500 sf

Overhead and profits were each calculated as 10 percent of sales price.

Source: Clayton Research Associates and Fliess Gates McGowan Easton Architects.

The semis and street townhouses would be suitable for families with and without children who represent the largest proportion (56 percent) of potential first-time buyers in London. The bonus unit would be most suited to couples without children or single people.

Market Analysis

The market analysis of houses in the London area indicates that most types of housing can meet the Province's affordable guideline price of $121,500. In some parts of London, small single-detached bungalows without garages are currently being sold for less than this price. Semi-detached houses were marketed earlier this year in the London area for prices starting at less than $95,000.

NEW HOUSING CURRENTLY BEING MARKETED IN LONDON, APRIL, 1989

	Size (sf)	Price Range	Number of Bedrooms
Single-Detached	840-960	$110,500-$112,900	2-3
	1,050-1,072	$112,900+	3
	1,200	$121,900-$123,900	3
	1,275-2,015	$136,900-$179,000	3
	1,240-2,200	$144,990-$165,320	3
Semi-Detached	1,100-1,200	$ 94,000-$107,900	3

Source: Clayton Research Associates based on survey of projects.

In the resale market, about half of all existing houses are sold for less than the Provincial guideline price of $121,500. Average MLS prices for townhouses, semi-detached houses and bungalows as well as condominium townhouses and apartments are all significantly lower than $121,500, in-

AVERAGE MLS HOUSE PRICES LONDON, 1989*

	Average Price
Bungalow	$101,173
Semi-Detached	$ 95,237
Townhouse	$ 91,983
Condominium	
Townhouse	$ 85,178
Apartment	$106,749

* Average for first three months of 1989.

Source: London and St. Thomas Real Estate Board.

dicating a good supply of relatively affordable resale dwellings in London.

For the semi-detached house and the townhouse examined here, it appears that the market price in London will not be significantly different from the price indicated in the financial analysis - i.e., roughly $105,000-$115,000. It appears also that the larger (1,209 square feet) three bedroom semi-detached house would have a market price at or below the guideline price of $121,500.

In addition, while not examined in this analysis, it is clear that the low-rise and mid-rise apartments could also be built in London at prices and costs below the guideline price. However, with the low cost of alternative lower density housing, the market for such units may not be large.

CONCLUSION

It seems clear from the analysis here that builders in London have little difficulty in meeting the Province's guideline price for affordable housing. This is likely also the case in many centres throughout Ontario.

In Brampton and Oakville, on the other hand, little is currently being produced at or near the Province's guideline price of $148,500. Analysis of costs and market prices indicate that it is possible for builders to produce modest housing at a reasonable profit near the guideline affordable price level; however, unless the housing is to be sold at below market prices, only small units in higher density housing forms such as low- and mid-rise apartment buildings will currently meet or approach the guideline price.

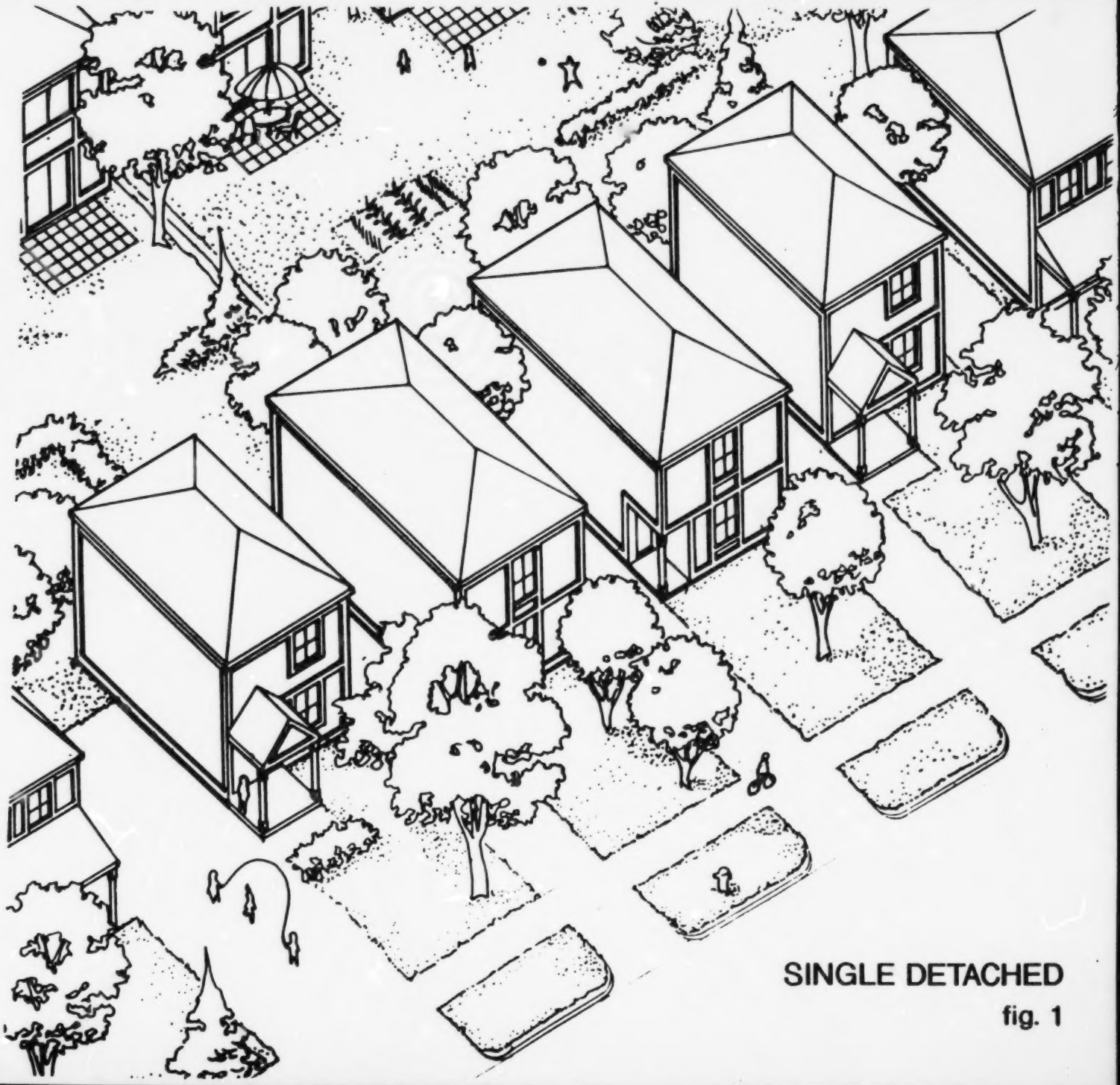
The analysis indicates that the current market price for two bedroom semi-detached houses (even if placed on small innovative lots) and three bedroom street townhouses in Brampton would be well above $148,500. This would likely also be the case if these units were built in Oakville or most other parts of the Toronto CMA. But modest two bedroom units in both low- and mid-rise apartment buildings could be priced near or below $148,500. From the analysis here, it would appear that these units could be built and sold at prices near the guideline price in either Brampton or Oakville.

The analysis of ownership housing costs and prices deliberately concentrated on dwellings considered to be suitable for occupancy by families - i.e., two bedroom units or greater. This was because families represent the majority and most likely buyers among potential first-time homebuyers. Also, if family-sized units can be built for the guideline price, smaller units for single people clearly could be built as well. Therefore, it would appear from this analysis that smaller units (e.g., one bedroom and bachelor units in apartment buildings) could also be built below the guideline price - if there is a market for such units.

On the rental side of the market, only the bonus unit over the garage was examined. For all three centres, this would appear to be a cost effective means of providing rental housing since the market rent would be well above the cost of carrying the additional construction work to build the unit. While there is some doubt about whether many new home buyers would opt to rent out such a unit, it appears to be a useful option for buyers to consider and also provides an opportunity to house nannies or family members who might otherwise rent a unit elsewhere.

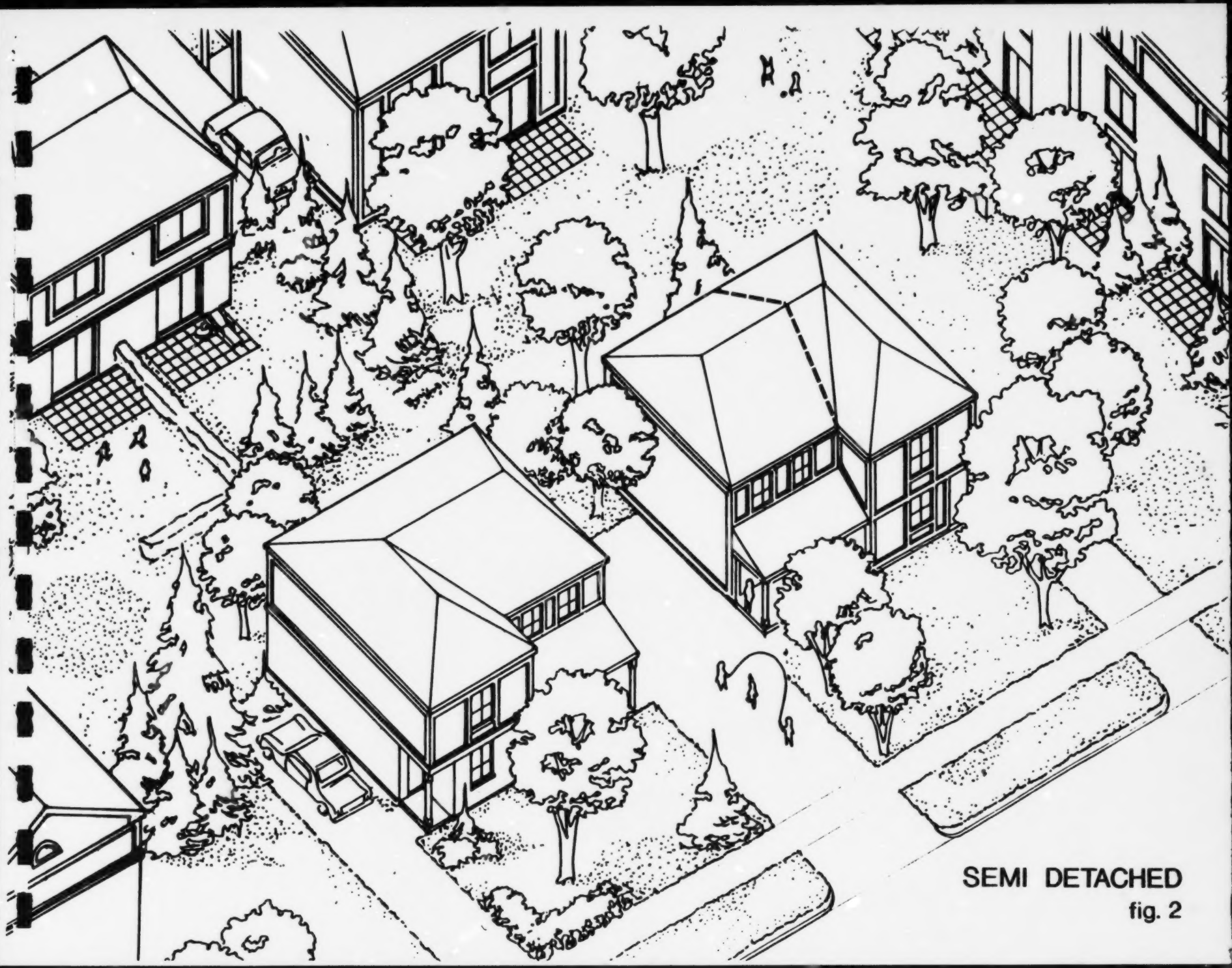
List of Illustrations

Figure 1	Single-Detached
Figure 2	Semi-Detached
Figure 3	Semi-Detached
Figure 4	Single-Detached/Semi-Detached
Figure 5	Single-Detached/Semi-Detached
Figure 6	Townhouses
Figure 7	Townhouses
Figure 8	Back-to-Back Townhouse
Figure 9	Back-to-Back Townhouse
Figure 10	Walk-Up Apartments
Figure 11	Walk-Up Apartments
Figure 12	Walk-Up Apartments
Figure 13	Apartment Building
Figure 14	Apartment Unit
Figure 15	One-Bedroom Bonus Unit Over Garage
Figure 16	One-Bedroom Bonus Unit Over Garage
Figure 17	Community of Townhouses, Semi-Detached, Single-Detached
Figure 18	Community of Townhouses, Small Lot Semi-Detached
Figure 19	Community of Walk-Up Apartments



SINGLE DETACHED

fig. 1



SEMI DETACHED

fig. 2

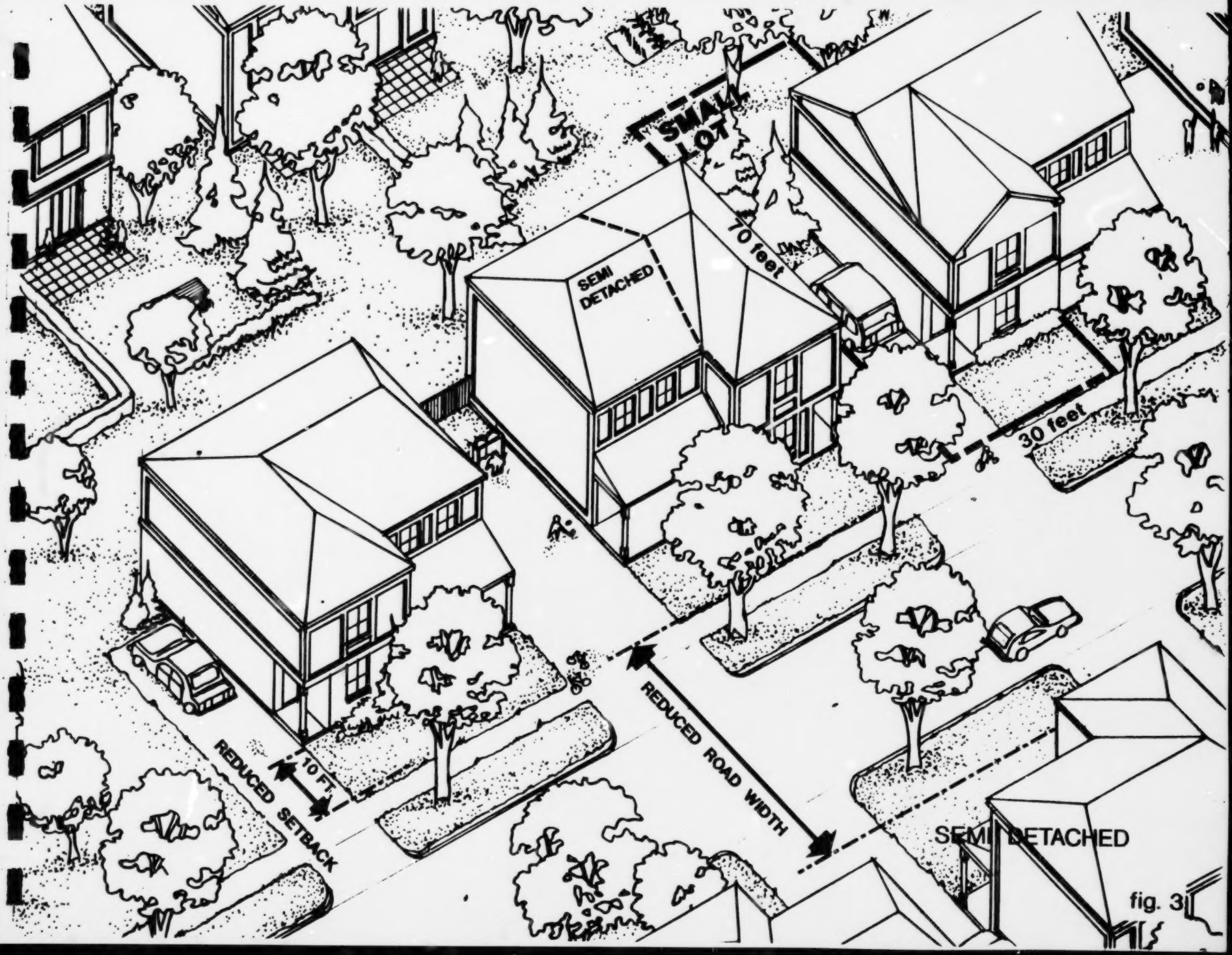
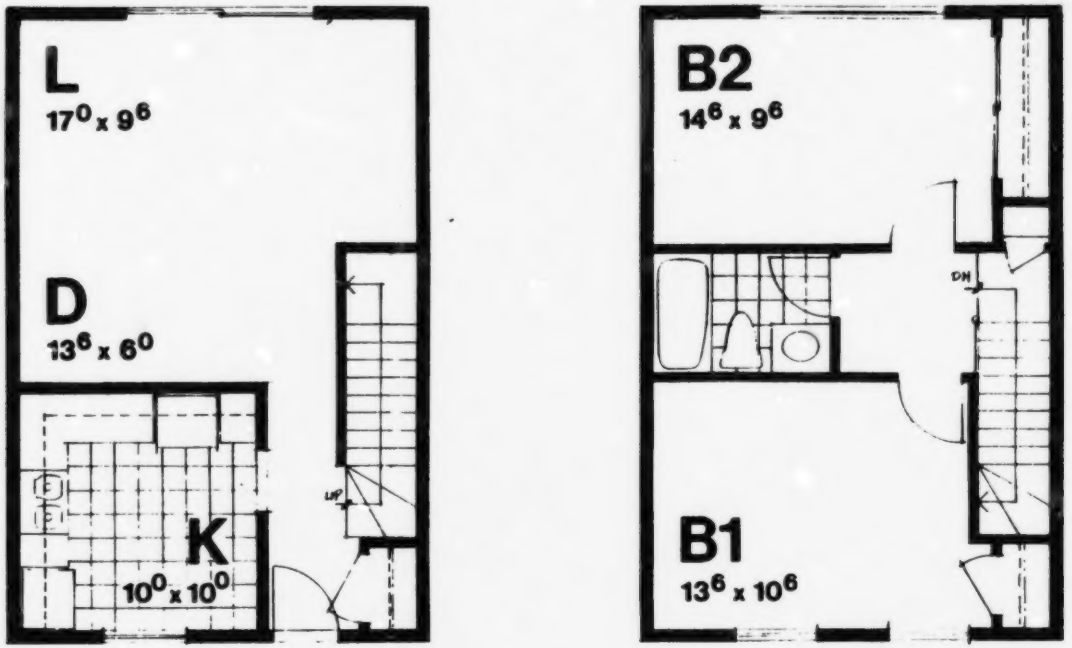

SMALL LOT
70 feet
SEMI DETACHED
30 feet
REDUCED ROAD WIDTH
10 FT.
REDUCED SETBACK
SEMI DETACHED

fig. 3



GROUND FLOOR **2ND FLOOR**

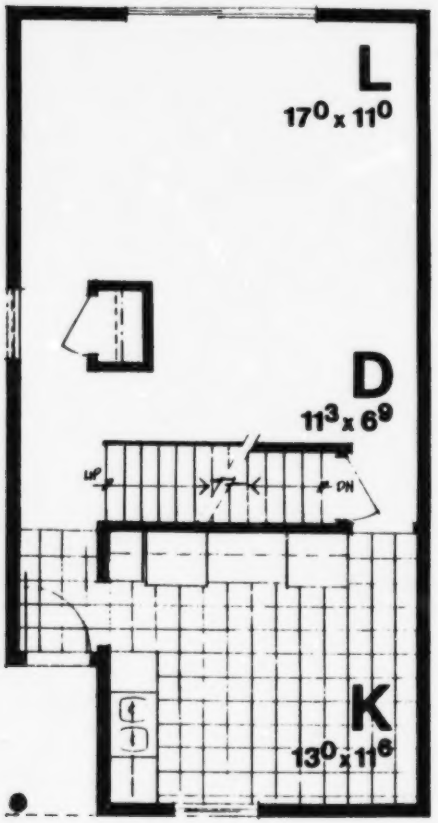
0 1 2 3 4 5 10 20ft.

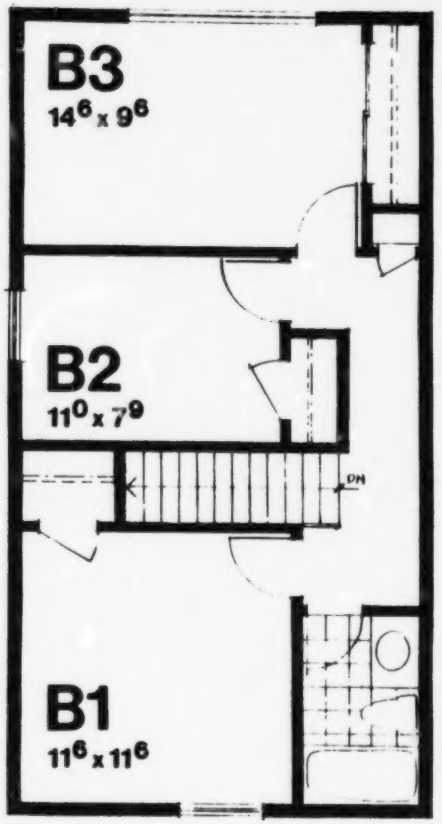
2 BEDROOM UNIT

gross floor area
972 sq. ft.

SINGLE DETACHED / SEMI DETACHED

fig. 4





GROUND FLOOR

2ND FLOOR

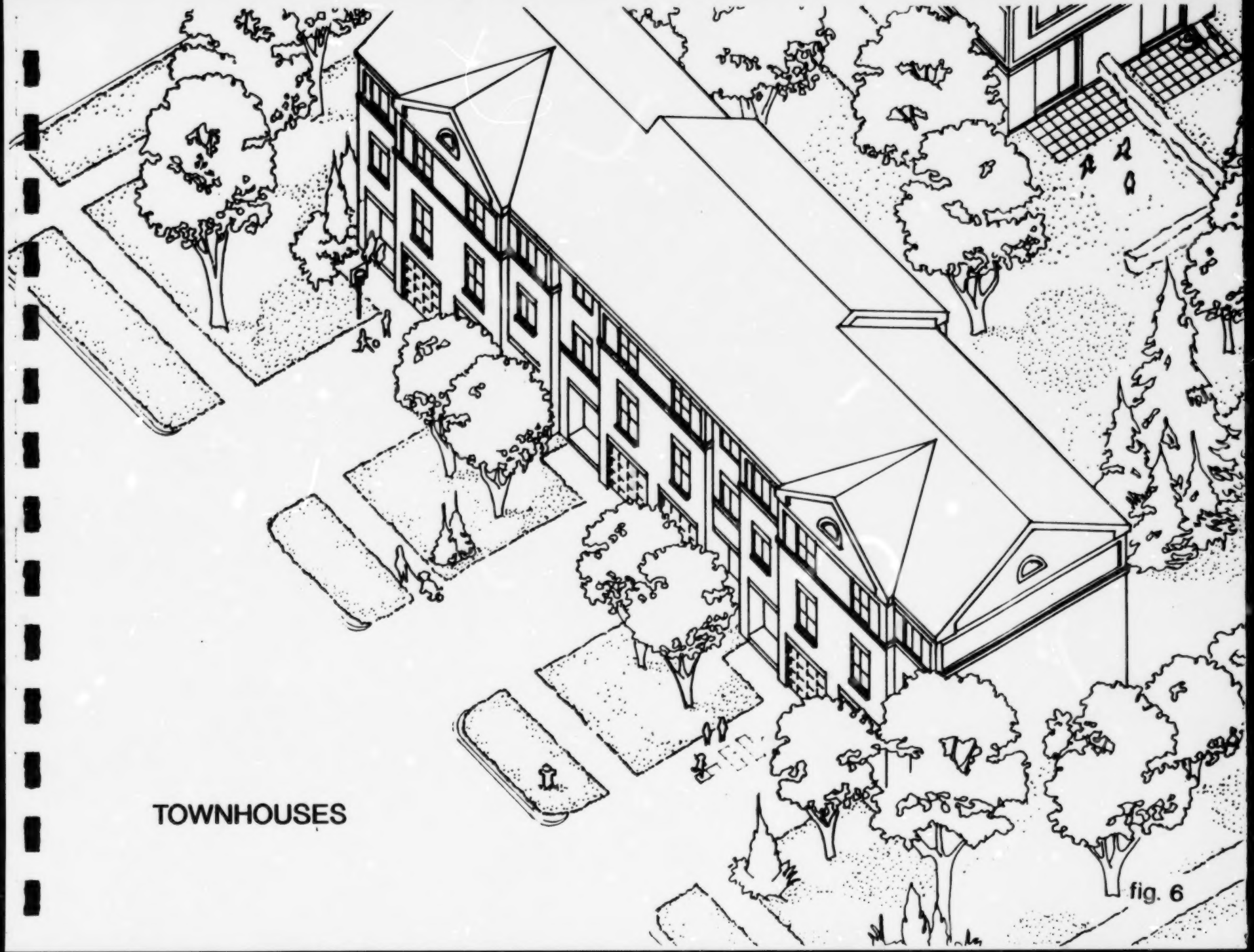
0 1 2 3 4 5 10 20ft.

3 BEDROOM UNIT

gross floor area
1209 sq. ft.

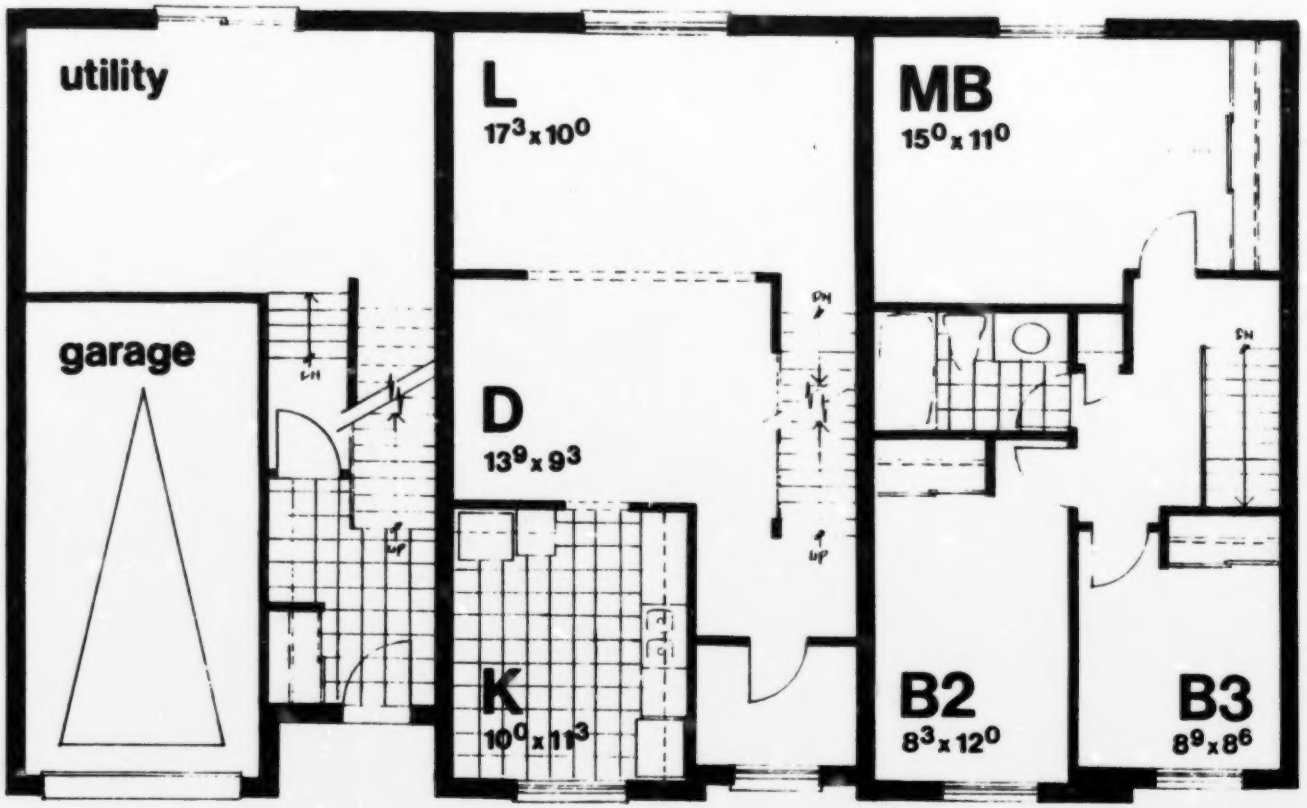
SINGLE DETACHED / SEMI DETACHED

fig. 5



TOWNHOUSES

fig. 6



GROUND **2ND FLOOR** **3RD FLOOR**

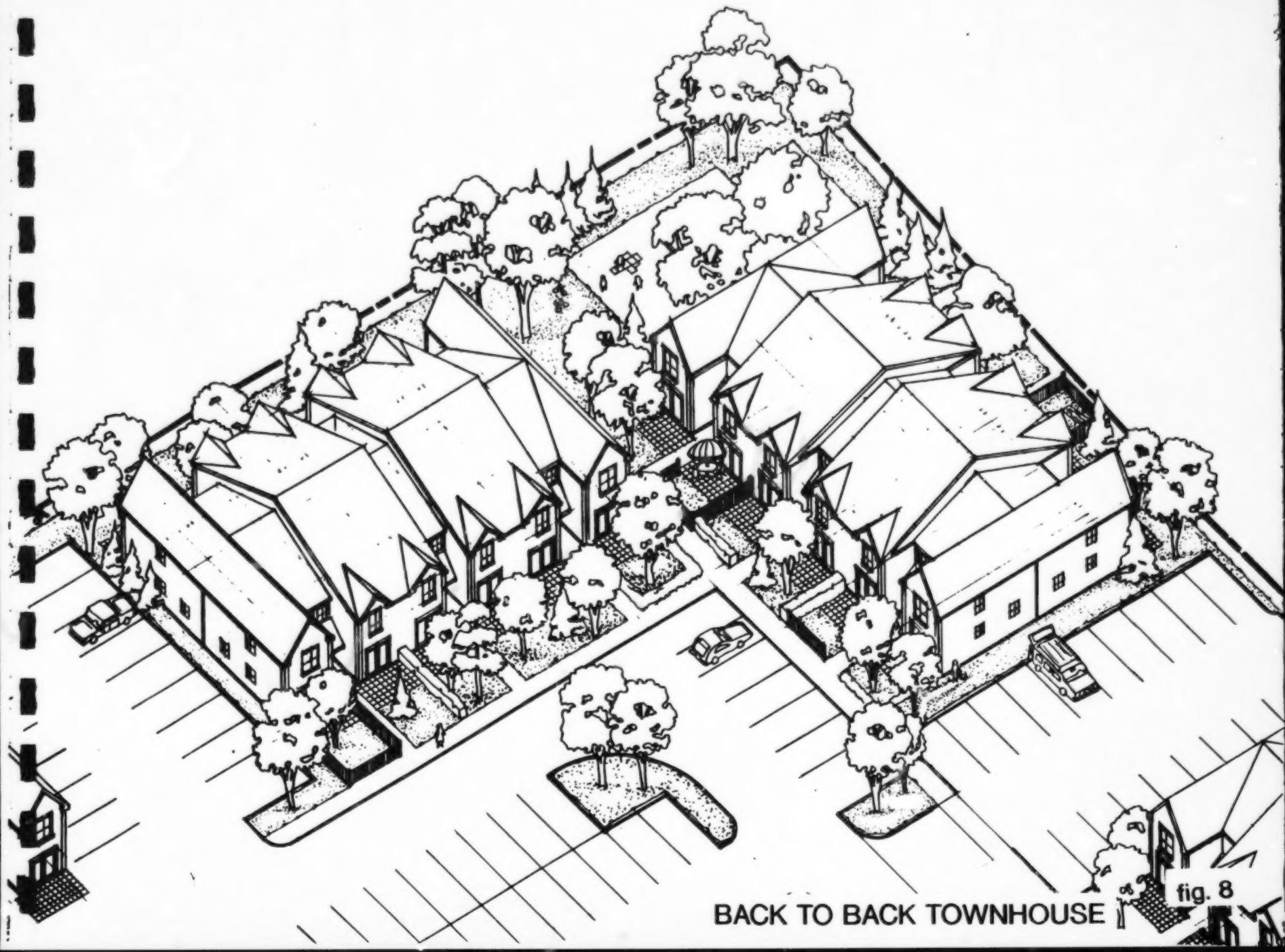
0 1 2 3 4 5 10 20ft.

3 BEDROOM WITH GARAGE

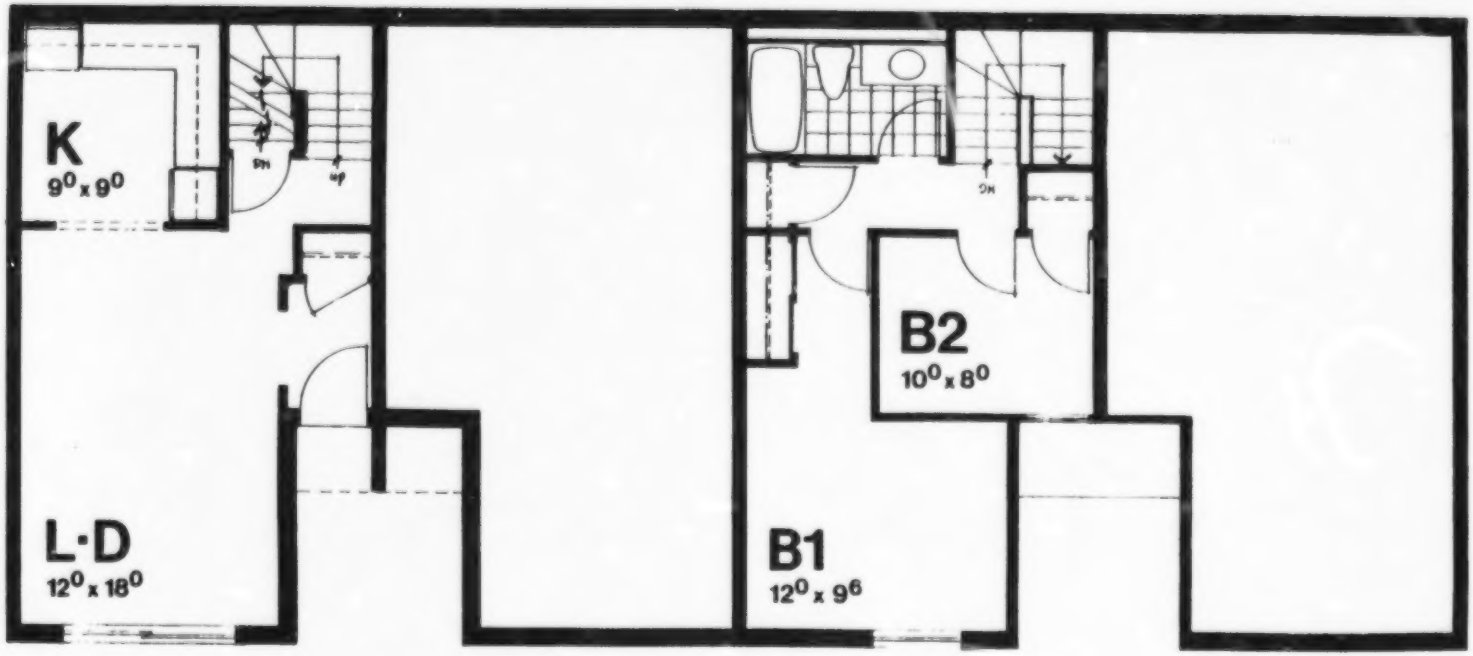
gross floor area
1275 sq. ft.

TOWNHOUSE

fig. 7

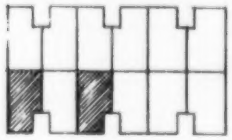


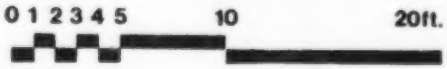
BACK TO BACK TOWNHOUSE fig. 8



GROUND FLOOR

2ND FLOOR





2 BEDROOM

BACK TO BACK TOWNHOUSE UNIT

gross floor area
890 sq. ft.

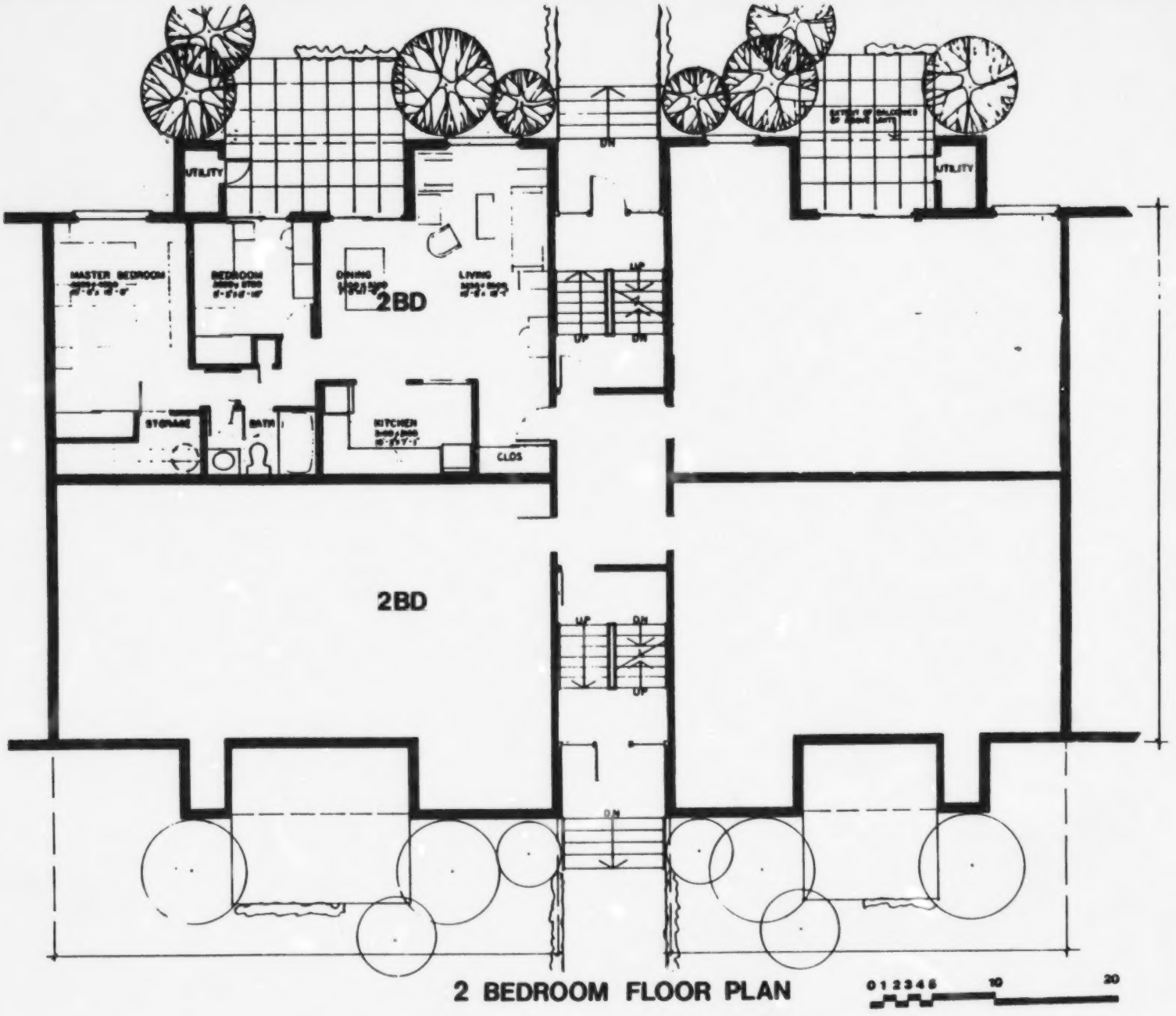
fig. 9

WALK-UP APARTMENTS

fig. 10

WALK-UP APARTMENTS

fig. 11

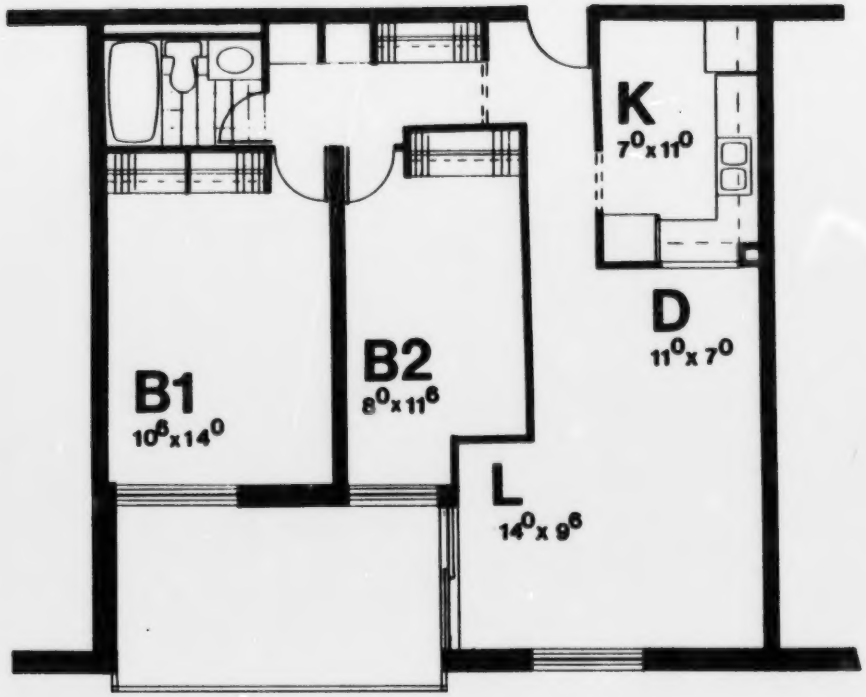


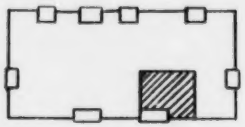
2 BEDROOM FLOOR PLAN

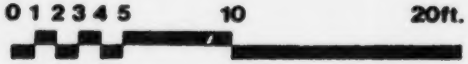
WALK-UP APARTMENTS fig. 12

APARTMENT BUILDING

fig. 13



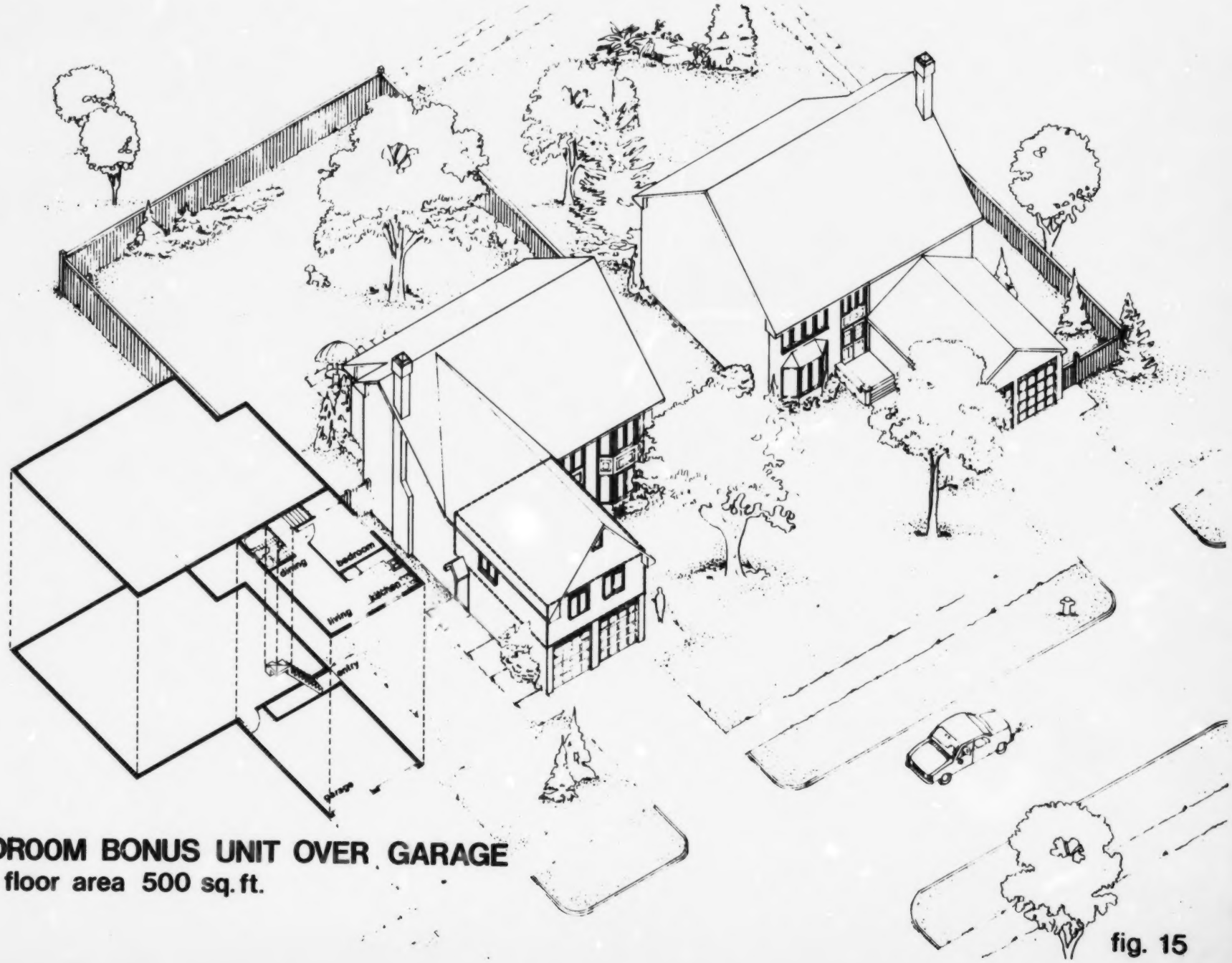




2 BEDROOM

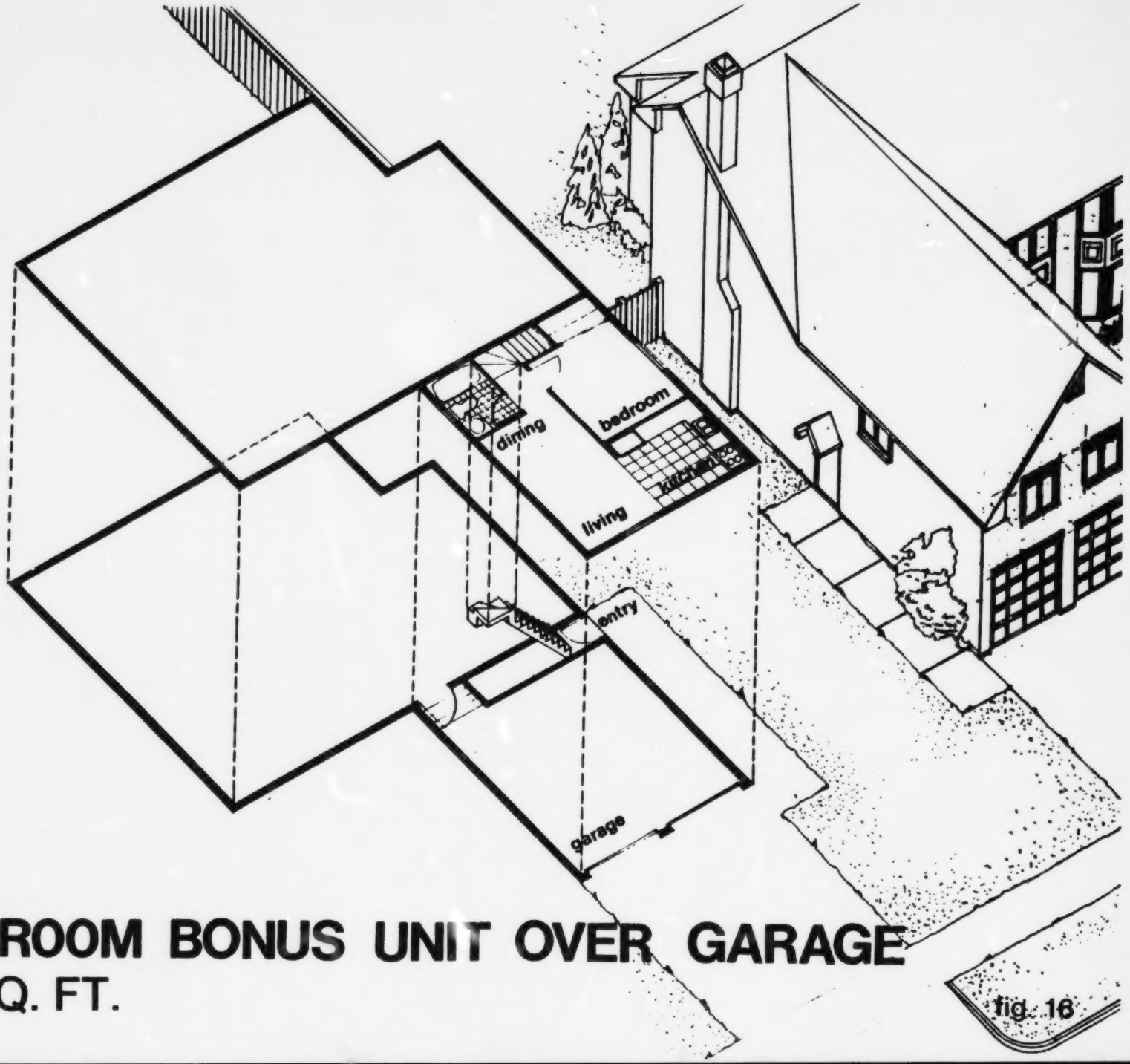
APARTMENT UNIT

fig. 14



1 BEDROOM BONUS UNIT OVER GARAGE
gross floor area 500 sq. ft.

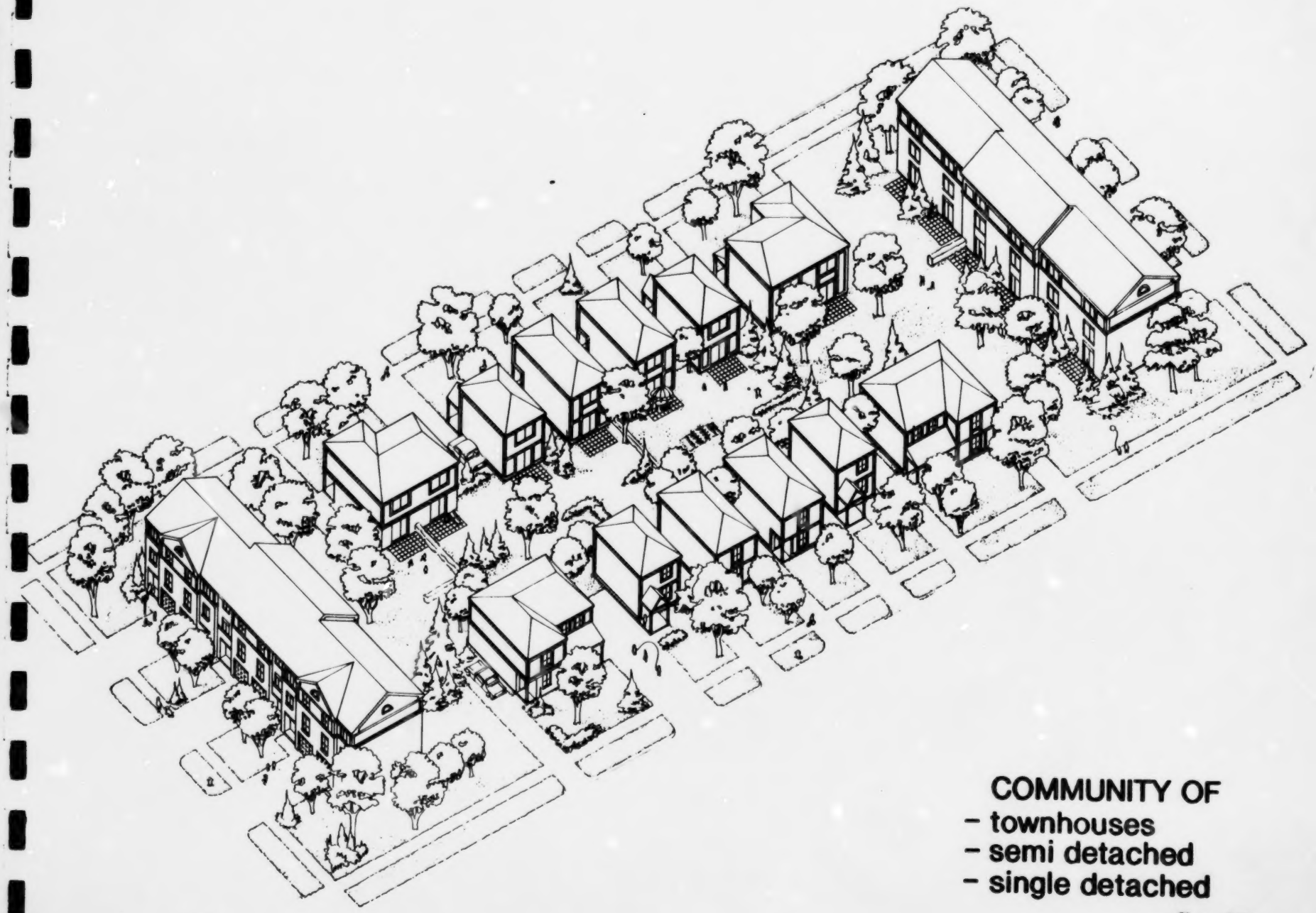
fig. 15



1 BEDROOM BONUS UNIT OVER GARAGE

500 SQ. FT.

fig. 16



COMMUNITY OF
- townhouses
- semi detached
- single detached

fig. 17

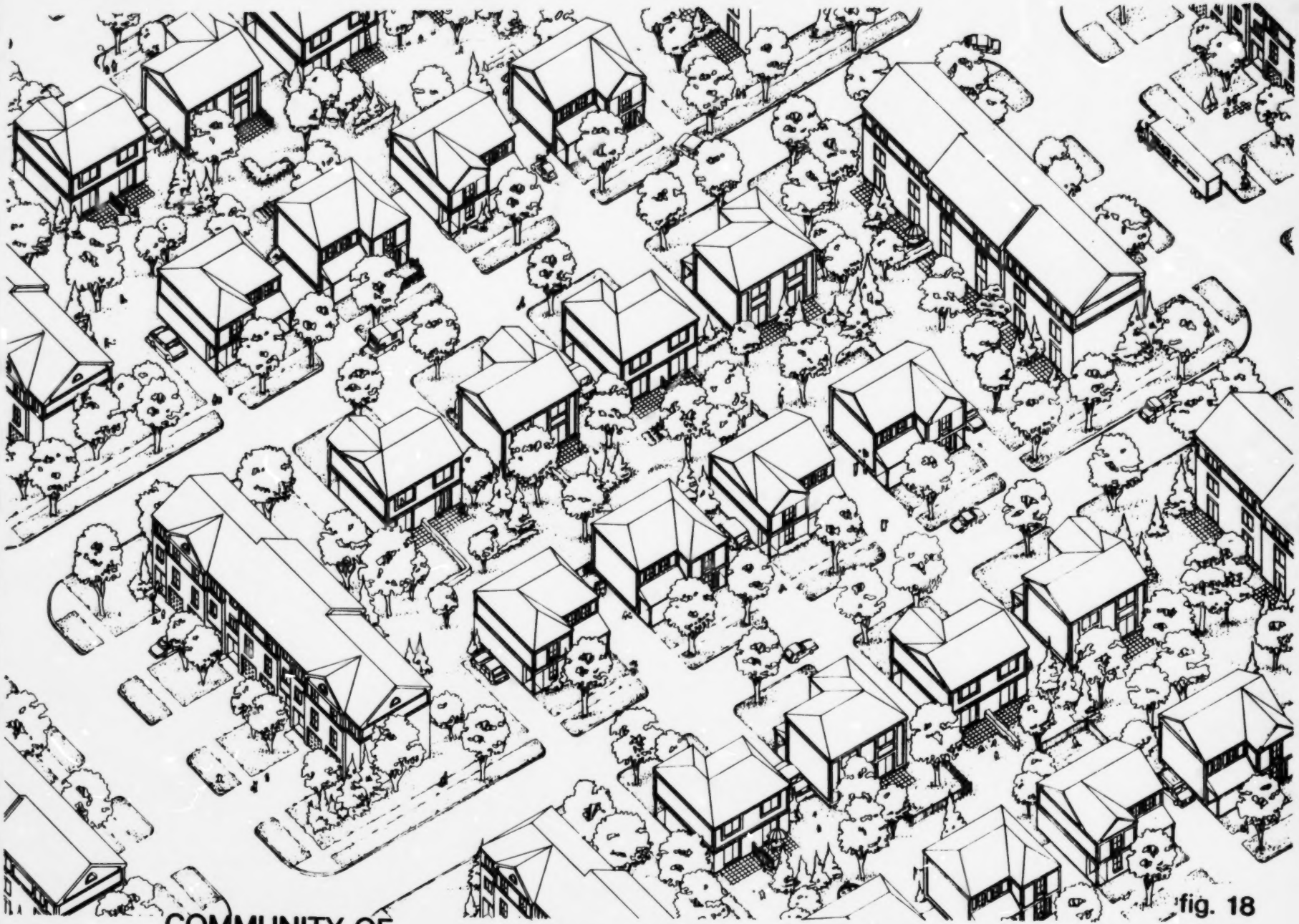
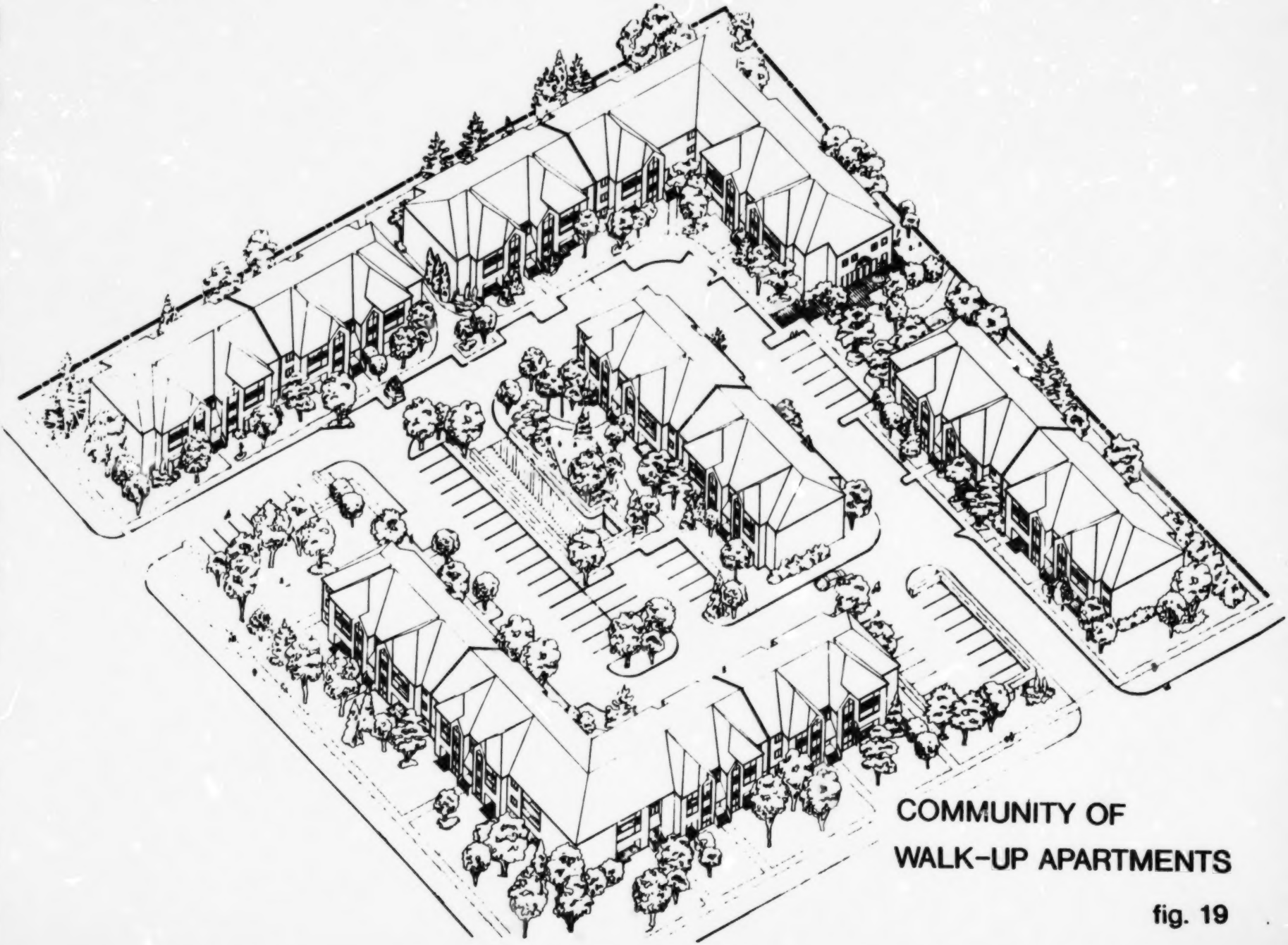


fig. 18

COMMUNITY OF
- townhouses - small lot semi detached



COMMUNITY OF
WALK-UP APARTMENTS

fig. 19